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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/463,776	01/28/2000	HITOSHI TANIGUCHI	500.38128X00	6785

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EXAMINER

CHUNG, DAVID Y

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/463,776

Applicant(s)

TANIGUCHI ET AL.

Examiner

David Chung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 22 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-3, 6-12 and 15-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-3, 6-12 and 15-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 rejected under 35 U.S.C. 103(a) as being unpatentable over Ciupke et al. (U.S. 5,461,547). Ciupke et al. discloses a lighting system comprising an edge lit type light guide with a plurality of parallel microgrooves. Ciupke et al. teaches that the facets of the v-shaped microgrooves make an angle of 45-55 degrees respect to a direction perpendicular to the light guide. See column 2, lines 53 – 56. From this teaching, it would have been obvious to one of ordinary skill in the art the angle of inclination with respect to the light guide surface is in the range of 35-45 degrees. Furthermore, Ciupke et al. teaches that the v-shaped grooves 17 typically have depths of 2.5 to 10 microns. See column 2, lines 45 – 50. Given the angle of inclination, it would have been obvious to one of ordinary skill in the art that the width of the microgrooves would typically be greater by a factor of two to three. The width would then be in the range of 7.5 to 30 microns. A width in this range and a length several times larger than the width would yield an area within the range of 0.01 to 0.0001 square mm. Therefore, it would have been obvious to one of ordinary skill in the art at

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the time of invention that the microgrooves in Ciupke et al. have dimensions which fall in the range claimed by applicant based on the ranges explicitly given. Furthermore, the area range encompasses several orders of magnitude and the angle range encompasses almost the entire useful range. These parameters were well known to be result effective variables which those of ordinary skill in the art knew to adjust in order to control the brightness and light distribution of the lighting system.

Claims 6-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Ciupke et al. (U.S. 5,461,547). From the parameters disclosed by Ciupke et al., it is clear that the width of the microgrooves is within the range of claims 6 and 7. Ciupke et al. explicitly discloses that the depth of the grooves is between 2.5 to 10 microns, which is within the range of claims 10 and 11. The axis 15 shown in figure 2 is clearly parallel to the light emitting side of the light guide. Furthermore, having a length to width ratio of less than 20 was conventional at the time of invention.

Claims 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Ciupke et al. (U.S. 5,461,547). Note reflective film 28 in figure 2.

Claims 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Ciupke et al. (U.S. 5,461,547). Ciupke et al. teaches that the spacing between grooves may be varied along the length of the light guide to provide improved uniformity of the light emitted along the length of the light guide. See column 2, lines 49 – 53.

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Claims 18-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Ciupke et al. (U.S. 5,461,547). The parameter variations recited by these claims are not patentably distinct limitations because these parameters represent result effective variables whose optimization was well known to those of ordinary skill in the art. Those of ordinary skill in the art knew how to manipulate the size, density and inclination angles of the grooves in order to achieve the desired brightness and light distribution.

Claim 27 rejected under 35 U.S.C. 103(a) as being unpatentable over Ciupke et al. (U.S. 5,461,547). It was well known and obvious to decrease the thickness of the light guide as the distance from the light source increased in order to maintain uniform brightness across the light guide and the display. The disclosures of Ishikawa et al. (U.S. 5,575,549) and Hira et al. (U.S. 5,961,198) are evidence of this. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to decrease the thickness of the light guide as the distance from the light source increased in order to maintain uniform brightness.

Claims 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Ciupke et al. (U.S. 5,461,547). It was well known and obvious to increase the number of grooves further away from the light source in order to increase the brightness of the lighting system at locations further away from the light source.

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Response to Arguments

Applicant's arguments with respect to claims 1-12 and 15-27 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (703) 306-0155. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.

David Chung
GAU 2871
01/13/03

KENNETH PARKER
PRIMARY EXAMINEE